

# School Climate Before and During the COVID - 19 Pandemic

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## Introduction

- Throughout the COVID-19 pandemic, there have been **negative changes** in student academic, behavioral and mental health outcomes (Carminucci et al., 2021. Panchal et al., 2021, U.S. Department of Education, 2022)
- Research has not yet **investigated how school climate has changed throughout the COVID – 19** pandemic using a national elementary school sample

## Research Questions

**RQ1:** What was the average rating of student perception of school climate the year before the COVID-19 pandemic and **what was the change during year one and year two of the COVID-19 pandemic?**

**RQ2:** To what extent did change in student school climate perceptions during the COVID-19 pandemic **vary based on school characteristics?**

## Participants

- 195 public elementary schools in 66 districts from 14 states.**
  - Reported school climate data at least once during the 2018 – 2019 and 2019 – 2020 school years, and once during the 2020 – 2021 and 2021 – 2022 school years

## Measures

**Georgia Elementary School Climate Survey (La Salle et al., 2018)**

- 11 item, 1 – 4 Likert scale

## 2018 NCES Demographic Information

- Enrollment
- % Minoritized Students, Receiving Free and Reduced Lunch
- Locale (Urban, Suburban, Rural)

## Analysis

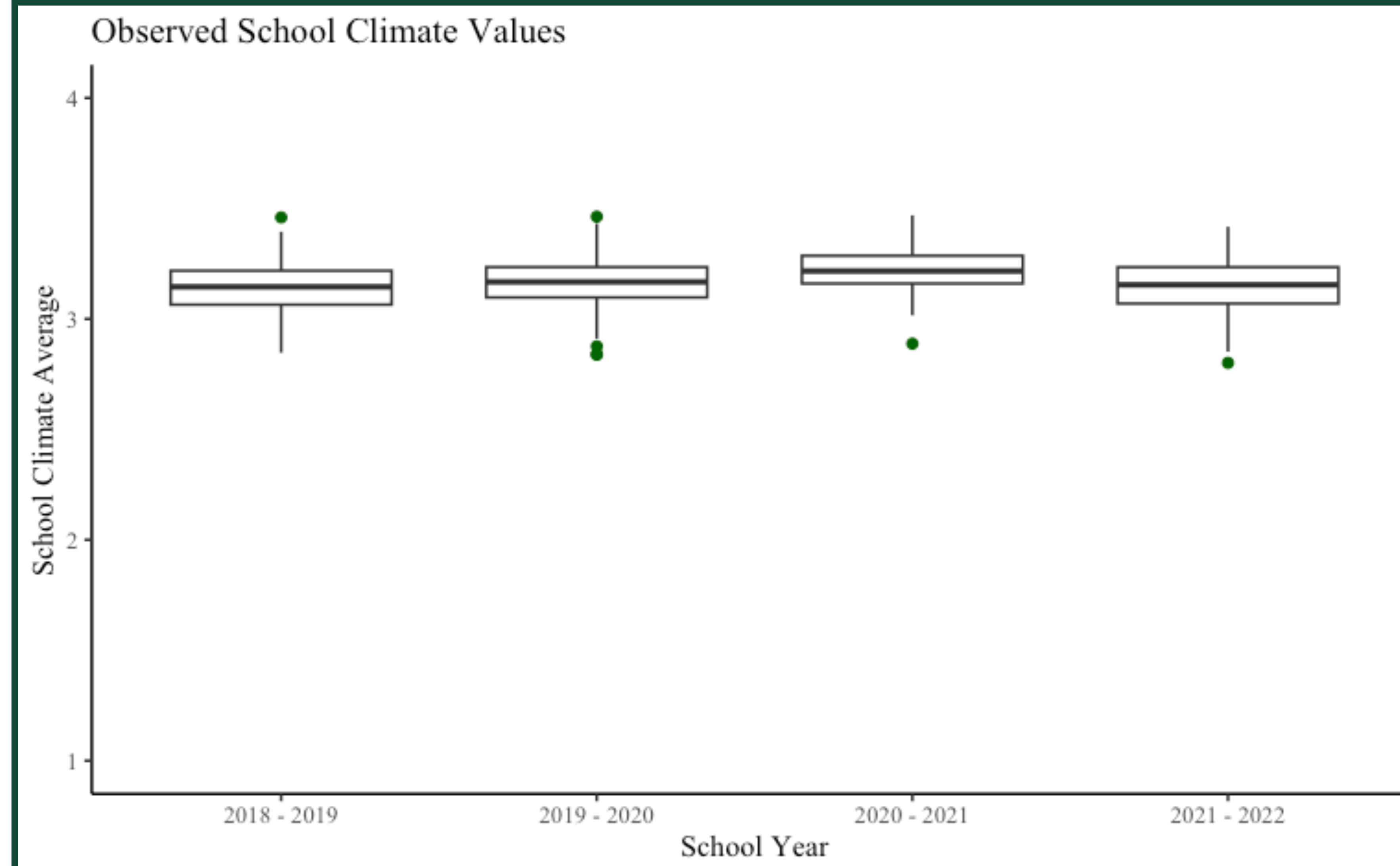
### Two-Level Multilevel Model

- Timepoints within schools
- 3 piecewise covariates for Pre-COVID (PreC), COVID year 1 (CY1), and COVID year 2 (CY2)
- Random effects for CY1 and CY2
- Robustness checks include analysis without imputed data, Z-transformed, Z-transformed & trimmed, sensitivity analysis for number of surveys

## Missingness

**Missing not at random**  $\chi^2(20) = 41.1, p < .01$

- Table 2 summarizes statistically significant differences in school climate scores and demographic information for schools with present or missing data for that year



**Table 1**  
Multilevel model estimates

Variable	Parameter	Conditional Model 1		Conditional Model 2		Final Model	
		Estimate	SE	Estimate	SE	Estimate	SE
Intercept	$\gamma_{00}$	3.1202**	0.0178	3.1259	0.0231	3.1335**	0.0120
Pre-Covid	$\gamma_{10}$	0.0064	0.0091	-0.0159	0.0247	0.0084	0.0090
Covid Year 1 (CY1)	$\gamma_{20}$	0.0448**	0.0097	0.0706**	0.0240	0.0659**	0.0093
Covid Year 2 (CY2)	$\gamma_{30}$	-0.0502**	0.0099	-0.0695**	0.0249	-0.0754**	0.0099
% Minoritized	$\gamma_{03}$	0.0007*	0.0003	0.0003	0.0004	0.0005	0.0003
% FRL	$\gamma_{04}$	-0.0020**	0.0004	-0.0020**	0.0005	-0.0018**	0.0004
Missing Data*CY1	$\gamma_{27}$			-0.0816*	0.0319	-0.0887**	0.0246
Missing Data*CY2	$\gamma_{37}$			0.1016**	0.0325	0.1006**	0.0317

Note. \*\* =  $p < .01$ , \* =  $p < .05$ , FRL = Free and Reduced Lunch  
 Only significant main and interaction effects displayed

**Table 2**

School climate and demographic information by missing data

	2018 - 2019		2019 - 2020		2020 - 2021		2021 - 2022	
	Present	Missing	Present	Missing	Present	Missing	Present	Missing
Schools (N)	147	48	164	31	143	52	152	43
2018 - 2019	3.14		3.16	3.06**	3.13	3.15	3.15	3.10
2019 - 2020	3.16	3.18	3.17		3.17	3.16	3.17	3.17
2020 - 2021	3.22	3.22	3.23	3.16**	3.22		3.23	3.20*
2021 - 2022	3.15	3.15	3.16	3.09*	3.17	3.12*	3.15	
Enrollment	447.09	438.43	454.23	395.97	415.99	524.64**	455.60	407.40*
% Male	51.48	52.36*	51.69	51.72	51.83	51.33	51.80	51.33
% Marginalized	58.22	47.61	57.36	46.36	52.15	65.11*	57.64	48.42
% FRL	68.83	54.60**	65.46	64.57	65.87	63.81	66.28	61.93
Urban	.14	.16	.14	.19	.18	.04**	.13	.20
Suburban	.57	.54	.60	.39*	.50	.73**	.57	.56
Rural	.28	.29	.26	.42	.31	.23	.30	.23

Note. \*\* =  $p < .01$ , \* =  $p < .05$

## Results

**RQ1:** There was a small and significant increase of 0.066 in school climate between the 2019 – 2020 and 2020 – 2021 school year and a small and significant decrease of 0.075 during the 2020 – 2021 and 2021 – 2022 school years.

**RQ2:** After controlling for other predictors, a one percent increase in the percent of students receiving free and reduced lunch estimated a 0.018 decrease in school climate. A one standard deviation increase in the percent of students receiving free and reduced lunch is estimated to decrease the average school climate by 0.044 across all years.

**Bonus Finding!** When controlling for other predictors, having missing data during pandemic year one was associated with a 0.089 decrease in school climate, while missing data during pandemic year two was associated with a .101 increase in school climate.

## Discussion

### The findings from this sample and study

- Speculations for why school climate had a small increase during CY1:
  - Smaller classroom size due to distancing guidance (CDC, 2021)
  - Cohorts of students may increase peer relationships (CDC, 2021)
  - Reduced ODRs during CY1 (Welsh, 2022)
  - Students missed going to school (Larivière-Bastien et al., 2022)
- Sampling bias may be present
  - Schools that assessed school climate over multiple years
  - Only schools with data before and after the onset of COVID
  - Missing data

### Take aways

- For schools measuring school climate and implementing PBIS:
  - School climate remained about ~3 before and during the pandemic
  - Schools with present data had slightly higher school climate scores in other years
  - Schools missing data during year one of the pandemic had:
    - Higher school enrollment
    - Served more students from a minoritized background
    - Were a majority suburban

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